REMARKS

The Office Action dated August 4, 2006 has been received and carefully considered. In this response, claims 26, 54, 63, 64, 69, and 73 have been amended. Entry of the amendments to claims 26, 54, 63, 64, 69, and 73 is respectfully requested. Reconsideration of the outstanding rejections in the present application is also respectfully requested based on the following remarks.

I.   THE ANTICIPATION REJECTION OF CLAIMS 26-29, 32, 38-47, 54-61, 6-65, 69, 71 AND 73

On page 2 of the Office Action, claims 26-29, 32, 38-47, 54-61, 6-65, 69, 71 and 73 were rejected under 35 U.S.C. § 102(e) as being anticipated by Green (U.S. Patent Publication No. 2003/0167380). This rejection is hereby respectfully traversed.

Under 35 U.S.C. § 102, the Patent Office bears the burden of presenting at least a prima facie case of anticipation. In re Sun, 31 USPQ2d 1451, 1453 (Fed. Cir. 1993) (unpublished). Anticipation requires that a prior art reference disclose, either expressly or under the principles of inherency, each and every element of the claimed invention. Id. "In addition, the prior art reference must be enabling." Akzo N.V. v. U.S. International Trade Commission, 808 F.2d 1471, 1479, 1 USPQ2d

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1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). That is, the prior art reference must sufficiently describe the claimed invention so as to have placed the public in possession of it. In re Donohue, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). Such possession is effected only if one of ordinary skill in the art could have combined the disclosure in the prior art reference with his/her own knowledge to make the claimed invention. Id.

Regarding claims 26, 54, 63, 64, 69, and 73, the Examiner asserts that Green teaches all the elements recited therein, including the creation of and access to "a virtual data store that reflects a state of an original data store at a specified time." For this assertion, the Examiner cites to Figures 37-43 and paragraphs [0145]-[0148] from Green, which describe a process for "Restoration of System to Another State." However, neither the cited portion nor any other portion of Green discloses or even suggests creating or accessing a "virtual" data store.

By referring to both "an original data store" and "a virtual data store" that reflects a historical state of the original data store, Applicants' claims refer to two conceptually distinctive storage entities. A "virtual data store" is typically "a prior image of another volume." Present

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Application at [0086]. "In some implementations, the new volume [i.e., virtual data store] can be assigned a volume or device identifier (e.g., a SCSI ID, or a Fibre Channel world wide name)." Id. at [0086]. "The virtual data store, can be for example, a new logical unit." Id. at [0087]. "The virtual data store, because it is virtual, it can be provided substantially instantaneously, with minimal or no data movement." Id. at [0087]. Such virtual data store can be made available for access just as a physical data store or the original data store. See, e.g., Id. at [0085]-[0090]. Note, however, the distinction between "a virtual data store" and "an original data store" does not preclude the original data store itself from being a virtual data store. See, Id. at [0091].

Recognizing the distinction between "a virtual data store" and "an original data store," it may then be appreciated that the creation of "a virtual data store" that reflects a historical state of the original data store typically does not involve overwriting the original data store.

On the other hand, Green describes a data restoration process that requires the original data store to be overwritten. According to Green, its "restore functionality" "is accomplished by walking through the index while determining which granules are being provided by the cache for the restored snapshot"

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(para. [0146]) "Those volume granules are _replaced_ by the identified granules from cache." Green at [0146] (emphasis added). That is, Green actually overwrites its storage granules (i.e., storage units) in order to restore the storage device to a historical state. This can be confirmed by other portions of Green. For example, Green further explains that "the [granule] replacement operation is subject to the same volume protection as any other volume writes, so _the volume changes engendered by_ _the restore_ are preserved in the snapshot set" (Green at [0146], emphasis added). That is, Green's restoration process actually changes its (original) storage volume. If there is still any doubt, the Examiner is referred to Green at [0149] (emphasis added):

> "To insure against _inadvertent reversions_,
> an initiation sequence preferably is
> utilized in accordance with preferred
> embodiments of the present invention wherein
> a user's intention to perform the reversion
> operation on the computer system is
> confirmed prior to such operation."

Note that the "inadvertent reversions" refers to the process of "Restoration of System to Another State" described in the preceding paragraphs [0146]-[0148] as cited by the Examiner.

Thus, Green does not disclose or even suggest creating or accessing "a virtual data store that reflects a state of an original data store at a specified time" as previously claimed.

In fact, Green does not contemplate the concept of "a virtual data store," and the word "virtual" never appears in Green.

Notwithstanding the above-described deficiency in the anticipation rejection of claims 26-29, 32, 38-47, 54-61, 6-65, 69, 71 and 73, to further distinguish Green and to expedite the prosecution of the present application, Applicants have amended independent claims 26, 54, 63, 64, 69, and 73. As currently amended, these independent claims clarify that the backup data have been accumulated by intercepting all write commands that are directed to the original data store [or the first logical unit] during a substantially continuous time interval." Such backup data "enable restoration of the original data store to any point in time during the substantially continuous time interval."

Green does not disclose or even suggest "intercepting all write commands that are directed to the original data store during a substantially continuous time interval." A major flaw in Green's snapshot management system is its reliance on scheduled snapshots to back up historical data. A careful review of Figure 3 and the corresponding description in paragraphs [0054]-[0073] of Green will reveal that Green's technique is incapable of capturing all the changes in the storage system. For example, if consecutive writes were made to

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a storage unit between two scheduled snapshots, only the last write will be captured. In its description of Figure 3, Green clearly admits this flaw at paragraph [0069]:

> "... Importantly, it should be noted that data "I" immediately (at time 17) replaces data "H" in the volume and "H" is not written to the snapshot cache. The reason for this is because data "H" was not in the volume at the point in time at which any of the previous snapshots were taken. Because address 4 of the volume changed twice between snapshots, only the starting and ending value of this address are captured by the snapshots. Intermediate data "H" is lost."

(emphasis added). Since changes in a typical storage system can occur at any time and cannot be accurately predicted, Green's pre-scheduled snapshots cannot capture all write commands directed to the storage system as presently claimed. Therefore, Green cannot accurately restore the system to "any point in time during the substantially continuous time interval."

For the foregoing reasons, Green does not disclose or even suggest all the elements as recited in independent claims 26, 54, 63, 64, 69, and 73. Therefore, claims 26, 54, 63, 64, 69, and 73 are patentable over Green.

Regarding claims 27-53, 55-62, 65-68, and 70-72 these claims are dependent upon independent claims 26, 54, 64, and 69 respectively. Thus, since independent claims 26, 54, 64, and 69 should be allowable as discussed above, claims 27-53, 55-62, 65-

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68, and 70-72 should also be allowable at least by virtue of their dependency on independent claims 27-53, 55-62, 65-68, and 70-72. Moreover, these claims recite additional features which are not disclosed, or even suggested, by the cited references taken either alone or in combination.

In view of the foregoing, it is respectfully requested that the aforementioned anticipation rejection of claims 26-29, 32, 38-47, 54-61, 6-65, 69, 71 and 73 be withdrawn.

II. THE OBVIOUSNESS REJECTION OF CLAIMS 30-31, 33-37, 48-53, 62, 66-68, 70 AND 72

On page 5 of the Office Action, claims 30-31, 33-37, 48-53, 62, 66-68, 70 and 72 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Green in view of Official Notice.

It is believed that the aforementioned obviousness rejection of claims 30-31, 33-37, 48-53, 62, 66-68, 70 and 72 has become moot in view of the deficiencies of the primary reference Green as discussed above with respect to independent claims 26, 54, 63, 64, 69, and 73, and further in view of the current amendments to independent claims 26, 54, 63, 64, 69, and 73.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 30-31, 33-37, 48-53, 62, 66-68, 70 and 72 be withdrawn.

III. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

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